

Pharmacokinetics of paeoniflorin after oral administration of Shao-yao Gan-chao Tang in mice

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Abstract

Paeoniflorin, a monoterpene glycoside, is the principal bioactive component of *Paeoniae Radix*. The traditional prescription Shao-yao Gan-chao Tang (SGT; Kampo: Shakuyaku-Kanzo-To), which is composed of *Paeoniae Radix* and *Glycyrrhizae Radix*, has been widely used in China and Japan. Quantification of paeoniflorin in mouse plasma after oral administration of SGT (at a dose containing 10 mg/kg paeoniflorin) was achieved using a simple and rapid high-performance liquid chromatography method. The plasma concentration-time curves were fitted with mean terminal half-lives ($t_{1/2}$) of 116.17 min. The maximum plasma concentration (C_{max}) of paeoniflorin was 111.56 ng/ml, time to reach maximum concentration (t_{max}) was 17.00 min, the area under the plasma concentration-time curve (AUC)_{0-t} was 12293.42 ng x min/ml, clearance/bioavailability (CL/F) value was 644.74 ml/min x kg, apparent volume of distribution/ bioavailability (V_d/F) value was 103.05 l/kg, and the mean residence time (MRT) was 169.64 min. These results, together with the previously reported kinetic data of paeoniflorin after oral administration of *Paeoniae Radix* extract alone, indicated that absorption of paeoniflorin after oral administration of SGT was significantly greater than that after oral administration of *Paeoniae Radix* alone.